Springback prediction: Simplified model

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Abstract

The materials plastically deformed by the application of cold work undergoes a change in its shape and geometry in removing the charge that has been applied. This phenomenon is known as springback or elastic recovery. There are different methods to deal with the problem that may be of experimental, numerical or analytical nature. This paper compares the application of three analytical models based on different elastoplastic behavior: the elastic perfectly plastic model and the elastic model with potential hardening, and their capacity to approximately predict the elastic recovery that the material will reach after a cold bending process of sheets or plates. The recovery models that were used were the ones of Hosford-Caddell, Gardiner corrected and a simplified model proposed by González-Coneo. This kind of models are attractive to the industry of plastic composition in the particular case of bending of sheets and plates.

Keywords

Elastoplastics Models; Plastic Strain; Prediction Of Strain; Springback